

**Environmental systems and societies**  
**Standard level**  
**Paper 1**

Friday 2 November 2018 (afternoon)

Candidate session number

1 hour

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**Instructions to candidates**

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Answer all questions. Refer to the resource booklet which accompanies this question paper.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[35 marks]**.



Answer **all** questions. Answers must be written within the answer boxes provided.

1. Identify **one** ecosystem in Algonquin Provincial Park. [1]

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2. With reference to **Figures 4(a)** and **4(b)**, describe the relationship between abiotic factors and vegetation type in Algonquin Provincial Park. [2]

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3. (a) With reference to **Figure 6**, draw a food chain that includes **four** trophic levels. [2]

- (b) Identify **two** ways that human activity in Algonquin Provincial Park may affect the food web. [2]

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4. (a) With reference to **Figures 8(a)** and **8(b)**, describe the changes in nutrient and oxygen content that occur after beaver dams are constructed. Include quantities in your response. [2]

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- (b) With reference to **Figures 9(a)** and **9(b)**, explain the impacts of beaver dams on biodiversity within Algonquin Provincial Park. [3]

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5. With reference to **Figures 9(a)** and **9(b)**, describe **one** abiotic change and **one** biotic change in a beaver meadow community undergoing succession. [2]

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6. Suggest how an ecologist might measure the changes in **one** abiotic factor along a transect from a beaver marsh, through beaver meadow to the adjoining forest. [3]

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7. (a) With reference to **Figure 7(b)**, calculate the percentage reduction in the price of beaver pelt between 1940 and 2015. [2]

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- (b) Identify **one** reason why the value of beaver pelts has changed over time. [1]

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8. Identify **one** reason why the trapping of beavers is permitted in Algonquin Provincial Park. [1]

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9. (a) Identify **one** benefit of the reintroduction of beavers in Europe. [1]

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- (b) Identify **one** potential problem with the reintroduction of beavers in Europe. [1]

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10. (a) With reference to **Figure 7(a)**, outline **one** reason why there are more beaver remains in wolf faeces during summer. [1]

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- (b) The number of wolves in Algonquin Provincial Park is estimated to be between 250 and 1000. Outline **two** reasons why it is so difficult to estimate the number of wolves accurately. [2]

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- (c) With reference to **Figure 10(b)**, explain the threats to the future existence of a small and sustainable population of wolves as a result of their protection in limited area. [3]

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[6]





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will not be marked.



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